A1 cont

4. (Amended) The process as claimed in claim 1, wherein R^6 and R^7 and/or R^8 and R^9 may be linked by a covalent bond so as to form a cyclic compound having from four to eight atoms.

5. (Amended) The process as claimed in claim 1, wherein ligands in which Y^1 and Y^2 are each a direct phosphorus-carbon bond are used.

6. (Amended) The process as claimed in claim 1, wherein Z comprises from one to four carbon atoms, in particular two carbon atoms.

7. (Amended) The process as claimed in claim 1, wherein Z is a C_1-C_6-alkyl or C_2-C_6-alkenyl group or is part of a C_3-C_8-cycloalkyl, C_5-C_8-cycloalkenyl, C_2-C_9-heterocycloalkyl, C_1-C_9-heterocycloalkenyl, C_6-C_{14}-aryl, phenyl, naphthyl, fluorenyl or C_2-C_{13}-heteroaryl group, where the number of heteroatoms from the group consisting of N, O, S can be 1-4 and all these groups may be monosubstituted or polysubstituted.

8. (Amended) The process as claimed in claim 1, wherein ligands in which a three- to nine-membered ring system can be formed by Z, X^1, X^2, P^1 and P^2 together with a coordinated metal are used.

A2

10. (Amended) The process as claimed in claim 1, wherein the starting materials of the formulae (I) and/or (II) used are ones whose substituents R^1 to R^4 are each, independently of one another, hydrogen, (C_1-C_{12})-alkyl, (C_2-C_{12})-alkenyl, (C_2-C_{12})-alkynyl, (C_6-C_{10})-aryl, CF_3, CN, COOH, COOM, where M is a cation selected from the group consisting of Li^+, Na^+, K^+, Mg^{2+}, Ca^{2+}, NH_4^+, $N(C_1$-C_{10}-alkyl$)_4^+$, $N(C_1$-C_{10}-alkyl/C_6-C_{10}-aryl$)_4^+$, COO-alkyl-(C_1-C_8), $CONH_2$, CONHalkyl-(C_1-C_8), CONalkyl$_2$-(C_1-C_8), CO-alkyl-(C_1-C_8), CO-phenyl, COO-phenyl, COO-aryl-(C_6-C_{10}), CO-aryl-(C_6-C_{10}), PO(aryl-C_6-C_{10})$_2$, POalkyl$_2$-(C_1-C_4), PO_3H_2, PO(alkyl-(C_1-C_4))(Oalkyl-(C_1-C_4)), PO(O-alkyl-(C_1-C_6))$_2$ or Si(alkyl)$_3$-(C_1-C_8) and/or R^3 and R^4 are selected independently from the group consisting of O-alkyl-(C_1-

C_8), OCO-alkyl-(C_1-C_8), O-aryl(C_6-C_{10}), OH, NH_2, NH-alkyl-(C_1-C_8), N-alkyl$_2$-(C_1-C_8), NHCO-alkyl-(C_1-C_4), NHCOO-alkyl-(C_1-C_4), NHaryl-(C_6-C_{10}), where alkyl is an unbranched or branched aliphatic or cyclic or heterocyclic radical containing from one to four heteroatoms selected from the group consisting of N, O, alkenyl is an olefinic hydrocarbon, alkynyl is an acetylenic hydrocarbon and aryl is an aromatic radical which may also be an aromatic containing 1-4 heteroatoms from the group consisting of N, O and S,

and alkyl, alkenyl and alkynyl and also aryl may bear substituents selected independently from among hydrogen, O-alkyl-(C_1-C_8), OCO-alkyl-(C_1-C_8), O-phenyl, phenyl, aryl-C_6-C_{10}, fluorine, chlorine, bromine, iodine, OH, NO_2, Si-alkyl$_3$-(C_1-C_8), CF_3, CN, COOH, COOM where M is a monovalent cation selected from the group consisting of Na, K, Rb, Cs, NH_4, N(C_1-C_{10}-alkyl)$_4$, N(C_1-C_{10}-alkyl/C_6-C_{10}-aryl)$_4$, and SO_3H, N-alkyl$_2$-(C_1-C_8), SO_2-alkyl-(C_1-C_6), SO-alkyl-(C_1-C_6), NHCO-alkyl-(C_1-C_4), COO-alkyl-(C_1-C_8), $CONH_2$, CO-alkyl-(C_1-C_8), CO-phenyl, COO-phenyl, COO-aryl-(C_6-C_{10}), CO-aryl-(C_6-C_{10}), PO-phenyl$_2$, POalkyl$_2$-(C_1-C_4), PO_3H_2, POalkyl-(C_1-C_4)(O-alkyl-(C_1-C_6)), PO(O-alkyl-(C_1-C_6))$_2$, Si(alkyl)$_3$(C_1-C_8), where alkyl and aryl are as defined above.

11. (Amended) The process as claimed in claim 1, wherein the starting materials of the formulae (I) and/or (II) used are ones in which R^1 and R^2 and/or R^3 and R^4 are linked by covalent bonds so as to form a three- to nine-membered ring.

12. (Amended) The process as claimed in claim 1, wherein metal complexes having central atoms selected from the group consisting of Rh, Ru, Ir, Pd, Pt, Ni, in particular ones containing rhodium as central atom, are used as homogeneous metal atom-ligand complex.

13. (Amended) The process as claimed in claim 1, wherein alkyl is an unbranched or branched aliphatic or cyclic hydrocarbon and aryl is an aromatic radical.

Q3

15. (Amended) The process as claimed in claim 1 which is carried out at a temperature of -40-100°C.

16. (Amended) The process as claimed in claim 1 in which further additives are used.

Q4

18. (Amended) The process as claimed in claim 1 carried out using phosphinite-rhodium catalysts without the addition of additives.

19. (Amended) The process as claimed in claim 1, wherein solvents used are alcohols, water, halogenated hydrocarbons, ethers, aromatic hydrocarbons and mixtures thereof.

20. (Amended) The process as claimed in claim 1, wherein the initial hydrogen pressure is from 0.1 to 300 bar.

21. (Amended) The process as claimed in claim 1, wherein the catalyst system is used in an amount of from 0.001 to 5 mol%, based on the carbonyl component of the formula (I).